PUBLIC-INTEREST FINDING FOR PROPRIETARY-MATERIAL USE

ROUTE: VAR DES NO: VAR

PROJECT NO: VAR COUNTY: VAR

PROJECT DESCRIPTION: Programmatic approval.

FHWA OVERSIGHT: ∑YES ☐ NO

PROPRIETARY MATERIAL:

5 GHz Unlicensed Frequency Band Radios:

Tsunami MP/QB

Model 800 Series,

Tsunami MP8200

Model MP-8200 Series,

Tsunami GX

Model GX-Series.

Manufactured by Proxim Wireless Corporation.

1. Description of Need:

The ITS Technology Deployment Division of the Indiana Department of Transportation is seeking approval for the equipment essential to the creation and maintenance of the INDOT ITS network.

Wireless communication devices are an integral part of the INDOT ITS network. Along with fiber optic cables they guaranty data flow between the field components and TMC. Radios are the preferred wireless communication devices because of the wide band, absence of the monthly usage fees (unlicensed frequencies), and low cost installation. Selection of Proxim radios out of multiple models, available on the market, is based on the fact, that only desired radios are meeting all requirements. Multitude of configurations allows designer select model guarantying required functionalities.

Required functionalities include:

- Provide stable reliable radio link.
- Provide radio link, capable of carrying multiple multicast and data streams.
- Provide separation of multiple networks in one physical location.
- Provide cost flexibility in one link (combination of high cost and low cost units).
- Provide ability of point-to-point and point-to-multipoint communication.
- Provide wide range of the bandwidth.

At the beginning of 2015 manufacturer announced the "End of Life" of all models 5054, which are the main wireless equipment in use for ITS purposes. Instead, they placed on the market MtP and QB 800 series radios, which have been tested and proven to be a direct replacement for 5054 and 5012 models.

2. Product History: These devices have been introduced for testing in 2005 and were excepted and used ever since. Approximately 800 of Proxim radios are currently being used in Indiana. They demonstrate very high reliability (over 96% uptime) and maintainability. Desired product is currently listed on INDOT Approved Materials <u>List</u> for Traffic Signal and ITS Control Equipment under ITS Wireless Communication Equipment. Testing was conducted according the ITM No. 948-10P

3. Product Availability: Google search for 5GHz radios returns multiple devices, meeting some of the requirements, but not all. Testing results for various make radios are presented in the following matrix:

***	Manufacturers	Systech	Firetide	Encom Radio	SmartBridges	Proxim	Novaroam
,	Specifications	Telecom (Libra 5800)		Services, Inc.			
Frequency range	Non-Licensed, 5 GHz	Yes	Yes	Yes	Yes	Yes	N/A
Throughput max	100 Mbps	Yes	Yes	Yes	Yes	Yes	No
Throughput min	50 Mbps	No	N/A	Yes-900Mhz	No	Yes	Yes
Maximum data	1.5 Mbps	N/A	N/A	N/A	N/A	Yes	Yes
rate							<u> </u>
TCP/IP compatible		Yes	Yes	Yes	Yes	Yes	Yes
Communication mode	Point-to-Point	Yes	No - Mesh	Yes	Yes	Yes	Yes
	Point-to-Multipoint	Yes	No - Mesh	Yes	No	Yes	No
Power-over- Ethernet	120 VAC	Yes	Yes	Yes/No for 900MHz	Yes	Yes	Yes
	48 VDC	No	N/A	Yes	Yes	Yes	Yes
Management	Ethernet/Serial	Yes	Requires	Yes	Yes	Yes	Yes
	Web Based	No	purchase of	Yes-High End only	Yes	Yes	No
	Telnet	Yes	proprietary S/W	No	No	Yes	Yes
Mode of operation	Bridge	Yes	No	Yes	Yes	Yes	Yes
	Router	No	Yes	Yes	Yes	Yes	Yes
Аvailability		Avallable through distributor	Available through distributor	Avallable through distributor	Available through distributor	Available through distributor	Avallable through distributor
Performance		High failure	In 6 month of	High failure rate	Low data rate	Very	Do not have high
record		ra(e	testing had never worked properly	and complicated management, Low end and high end radios are not compatible.	and high failure rate.	to manage locally and remotely, high end and low end radios are	end radios, require big antennas, inadequate tech support
Comments		Not acceptable	Not acceptable	Not acceptable	Not acceptable	Entered in approved materials list.	Not acceptable

- 4. Product Cost; Equipment available on the market does not provide required functionality and reliability as it shown in the table in paragraph 3. There is no equipment on the market to make cost comparison. The next closest product is the HD26342 priced at \$975.00. However, this product does not meet broadband and reliability requirements.
- 5. Project Compatibility: Desired product is compatible with existing ITS hardware, Application matrix below describes which model can be used for which application. The lowest cost Proxim radio model is being selected for any particular project based on the technology needs.

Model	MP	MP	QB-	MP-	QB-	MP-	GX.	5054-	P, PL, PX,
IMAGINOS	MII	IAIL	\\	8100	8100	8150-	Series	PA50-	PLX
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Subscriber Unit, Regular			x			,			
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Subscriber Unit, Extended				x	 x -				
Range (20 Miles)								1	:
Subscriber Unit, Regular				<u> </u>					·
Range (2 Miles)						Х	:	!	
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						7.			
Point — to - Multipoint	х	Ж	Х	X			X		
Broad Band , MHz	20	20	20	40	40	20	50		,,,,,
		~0				~~		•	
Throughput, Mbps	001	100	100	300	300	100	204/102		
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Gain, db					الم المحدثة والمد			23, 29	32
Cost	*\$1,736	\$2001	\$865	\$1,800	\$1,800	\$400	\$8,999-	\$144	\$350
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Application	Nodes of Spar	Nodos of Spur	CCTV at the	CCYV links,	CCTY	CCTV at	Relay		# # # # # # # # # # # # # # # # # # #
	or Spur links,	apur iinks,	end of	nnks, Relay	links, Relay	of Spur	sites		
	Relay	Relay	Spur	resol	rypidy	or apur		:	
 									

- 6. Maintenance: Desired equipment is designed such a way, that most of maintenance functions: monitoring up/down time, restoring functionality, updating/upgrading can be done remotely, which drives down maintenance cost. Training is available by manufacturer (as needed) and on line in Wiki Notes, accessible for tech personnel from any location in Indiana. Low failure rate (less than 5%), compact design, and short order turn around time results in the minimal storage requirement.
- 7. Engineering Analysis: This application is programmatic by nature and unique not to a specific ITS project, but to the ITS architecture that is already in place. Proxim radios provide the best functionality of known similar products and are the most reliable.
- 8. Expanded Economic Analysis: There are over 800 units of various models of Proxim radio installed in Indiana to support ITS Network. Annual replacement rate, including damage done by lightning, is no more than 20 units a year, majority are the low cost 5012 units. While testing other models ITS Technicians were replacing 10% of installed radios at least once a year. Replacement of Proxim radios is predominantly driven by technology progress, rather than wear.
- 9. Contractual or Performance Implications: Use of desired items does not impose any restrictions on the use of other items on the contracts.
- 10. Attach Supplemental Documentation: Attached are:
 - a) INDOT ITS Architecture;
 - b) ITM #948-10P 5GHz Unlicensed Frequency Band Radios.

11. Length of Time that Approval is Effective: 19/2013 mill 10/2016	1/2016	unfil	1/2019	
•	<u> </u>			JW W
Prepared By: Konstantin Veygman				
Field Engineer			1	

INDOT-ITS Technology Deployment Division

Date:

Based upon the above finding, the use of the proprietary material listed is in the public interest and is hereby approved.

APPROVED: M. P. Strucks Deputy Commissioner, Engineering	APPROVED: Mohamme for Division Administrator, FHWA
& Asset Management, INDOT	
Date:	Date: 1/21/16



Product Discontinuation Announcement

Jan, 2015

Dear Proxim Wireless Authorized Distributors,

Effective Jan 1st, 2015, Proxim Wireless is announcing the discontinuation of Tsunami® 5054, 5012, 4945, 2454, 4454, ORiNOCO® 8494 and 8670 product line. The discontinued models will no longer be available for ordering. Please update your system and online product catalog accordingly.

Description	Proxim CPN	Proxim Comcode	Alternativo Product/*
Tsunami MP:II Model 5054-R-LR High Power Base Station Unit for extended range with Type-N Connector-US PSU	5054-BSUR-LR-US	5054-BSUR-LR-US	MP-8200-BSU-US or MP-820-BSU-100-US
Tsunarni MP.f1 Model 5054-R-LR High Power Base Stalion Unit for extended range with Type-N Connector- US/UK/EU PSU- WORLD	5054-BSUR-LR-WD	5054-BSUR-LR-WD	MP-8200-BSU-WD or MP-820-BSU-100-WD
Tsunami MPII-R-LR; 5054-R-LR Hi-Power BSU w/int 23-dBl long range Antenna	77352	5054-BSUR-LR-P-US	MP-8250-BS1-US or MP-825-BS3-100-US
Tsunami MP:11 Model 5054-R-LR High Power Subscriber Unit for extended range with Integrated 23 dBI antenna- US/UK/EU PSU-WORLD version	5054-SUR-LR-WD	5054-SUR-LR-WD	MP-8250-SUR-WD or MP-825-SUR-50*-WD
Tsunami MP.II Model 5054-R-LR High Power Subscriber Unit for extended range with Type-N Connector- US PSU	5054-SUA-LR-US	5054-SUA-LR-US	MP-8200-SUA-US or MP-820-SUA-100-US
Tsunami MP.II Model 5054-R-LR High Power Subscriber Unit for extended range with Type-N Connector- US/UK/EU PSU- WORLD version	5054-SUA-LR-WD	5054-SUA-LR-WD	MP-8200-SUA-WD or MP-820-SUA-50*-WD
Tsunaml MP.II Model 5054-R Base Station Unit with Type-N Connector – US PSU	5054-BSUR-US	5054-BSUR-U\$	MP-8200-BSU-US or MP-820-BSU-100-US
Tsunami MP.11 5054-R, Base Station Unit Ruggedized 5Ghz, World	901-00105	5054-BSUR-WD	MP-8200-BSU-WD or MP-820-BSU-100-WD
Tsunami MP.11 Model 5054-R Subscriber Unit with Integrated 23-dBi Antenna – US PSU	5054-SUR-US	5054-SUR-US	MP-8250-SUR-US or MP-825-SUR-100-US
Tsunami MP:11a, Subscriber Unit Ruggedized 5GHz, World	901-00106	5054-SUR-WD	MP-8250-SUR-WD or MP-825-SUR-50+WD
Tsunami MP.11 Model 5054-R Subscriber Unit with Type-N Connector US PSU	5054-SUA-US	5054-SUA-US	MP-8200-SUA-US or MP-820-SUA-100-US
Tsunami MP:lla, Subscriber Unit , N-Connectorized 5Ghz, World.	901-00107	5054-SUA-WD	MP-8200-SUA-WD or MP-820-SUA-50'-WD
Tsunami MP.11 Model 5012 Outdoor Subscriber Unit with Integrated 18 dBI antenna, FCC Only	5012-SUR-US	5012-SUR-US	MP-825-SUR-100-US
Tsunami MP.11 Model 5012 Outdoor Subscriber Unit with Integrated 18 dBi antenna, World	5012-SUR-WD	5012-SUR-WD	MP-825-SUR-50-WD
5012-SUR-H-RU, Tsunami MPII 5012-SUR, 6 GHz, Hortzontal Antenna, Russia	75134	5012-SUR-H-RU	
5012-SUR-V-RU, Tsunami MP11 5012-SUR, 6 GHz, Vertical Antenna, Russia	75137	5012-SUR-V-RU	
Tsunami MP.11 5012-SUR, 5 GHz, Horizontal Antenna, India	74255	5012-SUR-H-IN	
Tsunami MP.11 5012-SUR, 5 GHz, Vertical Antenna, India	74256	5012-SUR-V-IN	
Tsunami MP.11 Model 5012 Indoor Subscriber Unit with 15 dBi Window Antenna, EU PSU	5012-SUI-WA-EU	5012-SUI-WA-EU	
Tsunami Quickbridge.ti Model 5054-R-L.R Bundle- US/CAN PSU	5054-QB-LR-US	5054-QB-LR-US	QB-8250-LNK-US or QB-825-LNK-50 ⁺ -US

Tsunami Quickbridge.11 Model 5054-R-LR Bundle- US/UK/EU PSU- WORLD version	5054-QB-LR-WD	5054-QB-LR-WD	QB-8250-LNK-WD or QB-825-LNK-50*-WD
Tsunami QuickBridge.fl Model 5054-R Bundle - US/CAN PSU	5054-QB-US	5054-QB-US	QB-8250-LNK-US or QB-825-LNK-50*-US
Tsunami QuickBridge 11 5054-R, 5GHz, World	902-00071	5054-QB-WD	QB-8250-LNK-WD or QB-825-LNK-50*-WD
Tsunami QB.11-R; 5054-R, 5GHz, For INDIA	75152	5054-QB-IN	QB-8250-LNK-WD or QB-825-LNK-50*-WD
Tsunami MP.11 Model 4954-R Base Station Unit with Type-N Connector — US/CAN PSU	4954-BSUR-US	4954-BSUR-US	MP-8200-BSU-US
Tsunami MP.11 Model 4954-R Subscriber Unit with Integrated 21-dBi Antenna – US PSU	4954-SUR-US	4954-SUR-US	MP-8250-SUR-US
Tsunaml MP:11 Model 4954-R Subscriber Unit with Type-N Connector US PSU	4954-SUA-US	4954-SUA-US	MP-8200-SUA-US
Tsunami QuickBridge.II Model 4954-R Bundle - US/CAN PSU	4954-QB-US	4954-QB-US	QB-8250-I.NK-US
Tsunami QulckBridge.11 Model 2454-R Bundle - Australia PSU	2454-OB-AU	2454-QB-AU	N/A
Tsunami QuickBridge.11 Model 2454-R Bundle - China PSU	2454-QB-CN	2454-QB-CN	N/A
Tsunami QuickBridge.11 Model 2454-R Bundle - South Korea PSU	2454-OB-SK	2454-QB-SK	N/A
Tsunami MP.11 HS 4454 Green; includes one 245054-RC-BSU-G and one 5044-CA	901-00128	4454-G	N/A
Tsunami MP.11 HS 4454 Sand; includes one 245054-RC-BSU-S and one 5044-CA-S	901-00127	4454-S	N/A
ORINOCO 802,11a/b/g/n USB Adapter; US	76298	8494-US	N/A
ORINOCO 802.11a/b/g/n USB Adapter; World	76297	8494-WD	N/A
ORINOCO 802.1la/b/g/n USB Adapter; Japan	76299	8494-JP	N/A
ORINOCO AP-4000MR Tri-mode Outdoor Mesh Access Point EU- EU PSU	8670-MR-EU	8670-MR-EU	N/A

^{**} Alternative Products Where possible, Proxim Wireless recommends alternative products to replace those being discontinued. The recommended replacement product, if applicable, can be found in above table.

Last Warranty Dates

To protect the customer's investment in these discontinued products, Proxim Wireless will continue to offer repair services for these radios until the dates listed below, Repair services may be subject to component availability.

Description	Last Warranty Onte-	Land Remain Date
Tsunami MPII Model 5054-R-LR High Power Base Stallon Unit for extended range with Type-N Connector- US PSU	1 st Jan 2016	1ª Jan 2019
Tsunami MP.II Model 5054-R-LR High Power Base Station Unit for extended range with Type-N Connector-US/UK/EU PSU- WORLD version		1 st Jan 2019
Tsunami MP:11-R-LR; 5054-R-LR Hi-Power BSU w/Int 23-dBI long range Antenna	1 st Jan 2016	1 st Jan 2019
Tsunami MP.II Model 5054-R-LR High Power Subscriber Unit for extended range with Integrated 23 dBi antenna-US/UK/EU PSU- WORLD version	1*\Jan 2016	1 st Jan 2019
Tsunaml MPII Model 5054-R-LR High Power Subscriber Unit for extended range with Type-N Connector-US PSU	1 st Jan 2016	1 st Jan 2019
Tsunami MP.11 Model 5054-R-LR High Power Subscriber Unit for extended range with Type-N Connector-US/UK/EU PSU-WORLD version	1 st Jan 2016	1st Jan 2019
Tsunami MP.II Model 5054-R Base Station Unit with Type-N Connector – US PSU	1 st Jan 2016	1 st Jan 2019
Tsunami MP.11 5054-R, Base Station Unit Ruggedized 5Ghz, World	1 st Jan 2016	1st Jan 2019

Tsunami MP.11 Model 5054-R Subscriber Unit with Integrated 23-dBi Antenna – US PSU	1 st Jan 2016	1 st Jan 2019
Tsunami MP11a, Subscriber Unit Ruggedized 5GHz, World	1 st Jan 2016	1 st Jan 2019
Tsunami MP:11 Model 5054-R Subscriber Unit With Type-N Connector – US PSU	1 st Jan 2016	1 st Jan 2019
Tsunami MPfla, Subscriber Unit , N-Connectorized 5Ghz, World.	1 st Jan 2016	1 st Jan 2019
Tsunami MP.11 Model 5012 Outdoor Subscriber Unit with Integrated 18 dBl antenna, FCC Only	1 st Jan 2016	1 st Jan 2019
Tsunami MP11 Model 5012 Outdoor Subscriber Unit with Integrated 18 dBi antenna, World	1 st Jan 2016	1 st Jan 2019
5012-SUR-H-RU, Tsunami MP.11 5012-SUR, 6 GHz, Horizontal Antenna, Russia	i st Jan 2016	1ª Jan 2019
5012-SUR-V-RU, Tsunami MP.11 5012-SUR, 6 GHz, Vertical Antenna, Russia	1º Jan 2016	1 st Jan 2019
Tsunami MP.11 5012-SUR, 5 GHz, Horizontal Antenna, India	1 st Jan 2016	l st Jan 2019
Tsunami MP:11 5012-SUR, 5 GHz, Vertical Antenna, India	1 st Jan 2016	1º Jan 2019
Tsunami MP:11 Model 5012 Indoor Subscriber Unit with 15 dBi Window Antenna, EU PSU	1 st Jan 2016	1 st Jan 2019
Tsunami Quickbridge.ti Model 5054-R-LR Bundle- US/CAN PSU	1st Jan 2016	1 st Jan 2019
Tsunami Quickbridge.ti Model 5054-R-LR Bundle- US/UK/EU PSU- WORLD version	1 st Jan 2016	1 st Jan 2019
Tsunami QuickBridge.tl Model 5054-R Bundle - US/CAN PSU	1 st Jan 2016	1 ^s Jan 2019
Tsunami QuickBridge 11 5054-R, 5GHz, World	1 st Jan 2016	1 st Jan 2019
Tsunami QB.II-R; 5054-R, 5GHz, For INDIA	1 st Jan 2016	1 ² Jan 2019
Tsunami MP.II Model 4954-R Base Station Unit with Type-N Connector – US/CAN PSU	1 st Jan 2016	1st Jan 2019
Tsunami MP:11 Model 4954-R Subscriber Unit with Integrated 21-dBi Antenna – US PSU	1 st Jan 2016	1st Jan 2019
Tsunami MPti Model 4954-R Subscriber Unit with Type-N Connector – US PSU	1 st Jan 2016	1 st Jan 2019
Tsunami QuickBridge.11 Model 4954-R Bundle - US/CAN PSU	1 st Jan 2016	1 st Jan 2019
Tsunami QuickBridge.11 Model 2454-R Bundle - Australia PSU	1 st Jan 2016	1 ^{si} Jan 2019
Tsunami QuickBridge.11 Model 2454-R Bundle - China PSU	1st Jan 2016	1 st Jan 2019
Tsunami QuickBridge.tl Model 2454-R Bundle - South Korea PSU	1st Jan 2016	1 st Jan 2019
Tsunami MP.11 HS 4454 Green: Includes one 245054-RC-BSU-G and one 5044-CA	1 st Jan 2016	1 st Jan 2019
Tsunami MP.II HS 4454 Sand: Includes one 245054-RC-BSU-S and one 5044-CA-S	1 st Jan 2016	1 st Jan 2019
ORINOCO 802,11a/b/g/n USB Adapter; US	1 st Jan 2016	1 st Jan 2019
ORINOCO 802.11a/b/g/n USB Adapter; World	1 st Ja⊓ 2016	1* Jan 2019
ORINOCO 802.11a/b/g/n USB Adapter; Japan	1 st Jan 2016	1st Jan 2019
ORINOCO AP-4000MR Tri-mode Outdoor Mesh Access Point EU- EU PSU	1 st Jan 2016	1 st Jan 2019

If you have additional questions, please feel free to contact your Proxim Distribution Sales Manager.

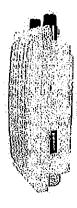
Sincerely, Proxim Wireless

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Tsunami[®] Multipoint <mark>820</mark> series

Point to Multipoint solution for Video Protection



Tsunami® Multipoint 820 series

Wireless Product Portfolio

- Tsunami® 8200 Series PtP & PtMP, product line delivering 300 Mbps plus data rate
- Tsunami[®] 800Series Compact and robust, high performance, PtP & PtMP product line
- Tsunami^o .11 Series -- Our best selling Point-to-point and multipoint product line
- Tsunami® GX-810- Carrier-class IP Ethernet bridge for voice and data backhaul for service providers and enterprise applications
- ORINOCO® AP The industry's highest performance 802.11g/b/g/n access points

Proxim Wireless is a global pioneer of broadband wireless systems that deliver the quadruple play of video, voice, data and mobility. Regardless of the application, our end-to-end product portfolio enables partners to custom-build the wireless solution that fits customer's specific needs. Our point-to-point wireless backhaul products are available through our extensive global channel networks.

Presenting Proxim's next generation video protection wireless solution

Proxim Wireless is a leader and an early innovator in wireless technology providing high-speed, long-range broadband wireless solutions. Leveraging the advantages of OFDM, MIMO radio innovations along with Proxim's proprietary Wireless Outdoor Routing Protocol (WORP®), the Tsunami® Multipoint 820 series is a feature rich evolving equipment specifically designed to address video protection market

The compact and robust form factor of Tsunami® Multipoint 820 series is an ideal solution for urban wireless deployments. It is suitable for pole mounting, next to video camera, in order to ensure citizen protection.

Tsunami[®] Multipoint 820 series is also adapted for in vehicle mounting and supports seamless roaming at very high speed.

World-class Performance

- Features a very small form factor and an outdoor rated IP67 Metal enclosure
- Available with 15 dBI integrated antenna or N-Type connectors
- = 50Mbps (license upgradable to 100Mbps) or 100 Mbps of throughput, with maximum data rates of 300Mbps
- Provides flexible channel planning with support for 4.900 to 5.927
- Comes with a 2x2 MiMO high power radio capable of 26 dBm transmit power
- Dynamic bandwidth allocation for service tiers.
- Seamless roaming up to 285 km/h (196 mph)

 Dowered via 802.3at PoE or directly from 12 VDC source for in-vehicle installation

Video Ready and Highly Secure

- Service flow based Quality of Service with advanced packet recognition (layer 2, 3 or 4)
- Multicast traffic compliant (no performance reduction) and built in IGMP snooping
- Advanced encryption protects over the air transmission via AES-128

 Kadio mutual authentication eliminates unauthorized use of the system by rogue subscriber units and man-in-the middle attacks.
- MAC, Ether type, IP address packet filtering provides granular network security
- Uses Proxim's Wireless Outdoor Routing Protocol (WORP) to prevent eavesdropping
- Features highly-secure remote management via SSL, SSH and SNMPv3

Reducing Costs for Wireless ISPs

- License-free frequency bands worldwide provide reliable wireless broadband without the high cost of licensed frequencies
- Low-cost bundle including both radio and mounting kit provides the industry's most aggressive price point, enabling any deployment to enjoy a quick return on investment

Easy to Install

- Comes as a complete compact outdoor form factor offering unprecedented ease of installation
- Deployment tools include spectrum analyzer, antenna alignment and remote management configuration
- Non Line-of-Sight capability provided by Advanced Orthogonal Frequency Division Multiplexing (OFDM) along with 2x2 MiMO eases deployment in challenging areas
- Collocated Base Station synchronization ready (enabled via software upgrade in Q2-14).
- Connects to all existing Tsunami® MP.11, Tsunami® 8100 and Tsunami® 8200

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MAY STATE OF THE S	Trucami" MP 820 Base Station				Asset Control	
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	MCS8	-72 dB		-91 d0m	-75 d8m -93 d8m	-77 d8m -94 d8m
	MCS 15	69 dB		-71 d0m	72 d8m	-75 d0 _m
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00000	Bynamic Frequency Selection (C					
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	MP-820-BSU-100/SUA-SO+/SUA			pa connectors		
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	MP-825-BS9-100/SUR-50+/SUR	-100		eyond 5,830 GHz)		·
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On YOU WAS A SHOOT OF				DIMENSIONS		WEIGHT
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Both territory entire to the	MP-825-853-100/SUR-50+/SUR-			81x275x00e}n1 16.2xEB		7.27 lbs (3.3 Kg)
i in increasion	MP-820-85U-100/SUA-50+/SUA			xz.85 ln {127.5x220,5x7		2.75 lbs (1.250 kg)
	MP-825-853-100/SUR-50+/SUR- UL 60950-1/22, CAN/CSA-C22.2			(x2,58 in (126x)19x65.5 1.1/22, FN 60450-1/22	ing)	2.10 lbs (0.950 kg)
	A One Tsunami MP-820-85U-					
	Or One Tsunami* MP-825-053-1					
	Or One Tsunamio MP-820-\$UA-	50•/SUA-100 W	ith two N-t	ype surge protected con	neclots	
	Or One Tsunami* MP-825-SUR-					
	# One 32 W power injector wit		n and count	ry specific power cord		
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APPLICATIONS

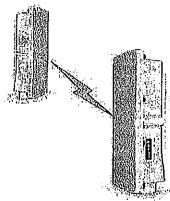
- Wireless Broadband/ISP High service availability, superior subscriber per sector support and ultrafast 4G connectivity help ISPs to quickly scale their network coverage as well as meet the rising demand for high-bandwidth, multimedia services effortlessly
- Last Mile Access Competitive broadband service access alternative to DSL or cable for residences and T1 or Ethernet for businesses
- Security and Survelllance High definition iP-surveillance cameras for monitoring city streets, airports, bridges, scaports, transportation hubs, offices and warelightes
- A Metropolitan Area Networks *Secure and reliable connectivity between city buildings
- Emergency First Responders Critical information delivery such as medical data and video feeds during In-progress events
- Enterprise Campus Connectivity Extend the main network to remote offices, warehouses or other buildings without leased lines

For datalled technical specifications, please go to http://proxim.spm/speducts/coint-to-multipoint/isunamir-mb-810-series

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Compact Point to Point Wireless Bridge Bundle



Tsunami Qulckbridge® 825 series

Wireless Product Portfolio

- Tsunami® 8:200 Series PtP & PtMP product line delivering 300 Mbps plus data rate
- Tsunami® 800Series Compact and robust, high performance, PtP & PtMP product line
- Tsunami[®] .11 Series
 Our best-selling Point-to-point and
 multipoint product line
- Tsunami® GX-810 Series
 Currier-class IP Ethernet bridge for voice and data backhauf for service providers and enterprise applications
- ORINOCO® AP 8000 Series The industry's highest performance 802.11a/b/g/n access points

Proxim Wireless is a global pioneer of broadband wireless systems that deliver the quadruple play of video, voice, data and mobility. Regardless of the application, our end-to-end product portfolio enables partners to custom-build the wireless solution that fits customer's specific needs. Our point-to-point wireless backhaul products are available through our extensive global channel networks.

Presenting Proxim's newest compact Point-to-Point wireless backhaul solution.

Proxim Wireless is a leader and an early innovator in wireless technology providing high-speed, long-range broadband wireless solutions. Proxim introduces the Tsunami Quickbridge® 825 series, an incredibly cost-effective, non Line-of-Sight Point-to-Point (PtP) wireless backhaul solution. With this complete "Hop-in-a-Box" solution delivering up to 100 Mbps throughput, deployments of all sizes will enjoy a quick return on investment.

With excellent spectrum efficiency and a highly evolved prioritization platform tailored to deliver voice, video and data applications, the Tsunami Quickbridge® 825 series satisfies carriers, wireless service providers and Government organizations with requirements for reliable cost optimized high performance wireless backhaul.

Leveraging the advantages of OFDM and the latest MIMO radio innovations, the Tsunami Quickbridge® 825 series draws on Proxim's proprietary Wireless Outdoor Router Protocol (WORP®) to deliver an unmatched outdoor wireless performance when compared to other, a products in the market today.

World-class Performance

- Features a very small form factor and an outdoor rated IP67 Metal enclosure
- Available with 15 dBi integrated antenna
- 50 Mbps of throughput (license upgradable to 100 Mbps) With maximum data rates of 300Mbps
 - Provides flexible channel planning with support for \$150 to 5.925 GHz
- Comes with a 2x2 MIMO high power radio capable of 26 dBm transmit power
- Allows flexible bandwidth allocation for service tiers
- Spectrum analysis feature helps to study frequency bands for Interference, and select a relatively low interference channel.

All-in-One Link with Security Features

- Built-in feature rich network protocols for Bridging and Routing
- Advanced encryption protects over-the-air transmission via AES-128
- Radio mutual authentication eliminates unauthorized use of the system by rogue End Point and man-in-the middle attacks
- MAC, Ether type, IP address packet filtering provides granular network security
- Uses Proxim's Wireless Outdoor Routing Protocol (WORP*) to prevent snooping
- Features highly-secure remote management via SSL, SSH and SNMPv3

Cost Effective and Ease of Installation for Quick Return on Investment

- Low-cost bundle including both radio and mounting kit provides the industry's most aggressive price point, enabling any deployment to enjoy a quick return on investment
- License-free frequency bands worldwide provide reliable wireless broadband without the high cost of licensed frequencies
- Comes as a complete "Hop-In-A-Box" compact outdoor form factor offering unprecedented ease of installation
- Non Line-of-Sight capability provided by Advanced Orthogonal Frequency Division Multiplexing (OFDM) along with 2x2 MiMO eases deployment in challenging areas



Tsunami Quickbridge[®] **825** series

Tsunami* GB 252 Link, 50 Miles (Expandable to 100 Miles). Million 222, 15 dBl antenna (Two GB 415-EPR-5 Will FOR In WORD** (Willieders Ondoor Router Protect). WORD** (Willieders Ondoor Router Protect). 222 MIMO OFFIN Mills (BSK, QESK, QMMIS, CAMME). 233 MIMO OFFIN Mills, 10 Mills, 25 Mills** channed bundwikth. 5.150 - 5.257 GHz (Bullect to Corolary Regulations). 40 Mills, 20 Mills, 10 Mills**, 5 Mills** channed bundwikth. MCS 0 10 5 for light Throughpain mode (5.4 - 300 Mills) with Dynamic Data Bare selection. Uly to 26 dim (deal clain). O - 15 db, 1no 5 db gare, Automatic TPC with configurable ERP limit. Channel size of the configurable ERP limit. Channel size of the configurable of the configurable ERP limit. MCS 0						
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S.150 - 5.975 - 5.915 Subject to Country Regulations * New York Programme Progra	MODULATION		AM16, QAM64			
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APPLICATIONS

- Wireless Broadband/ISP
- High service availability, superior subscriber per sector support and ultrafast 4G connectivity help ISPs to quickly scale their network coverage as well as meet the rising demand for high-bandwidth, multimedia services effortlessly
- Last Mile Access

Competitive broadband service access alternative to DSL or cable for residences and T1 or Ethernet for businesses

• Security and Surveillance

High definition IP-surveillance cameras for monitoring city streets, airports, bridges, seaports, transportation hubs, offices and warehouses

- Metropolitan Area Networks
 Secure and reliable connectivity between
 city buildings.
- Emergency First Responders Critical Information delivery such as medical data and video feeds during in-progress events
- Enterprise Campus Connectivity Extend the main network to remote offices, warehouses or other buildings without leased lines

For detailed technical specifications, please go to http://proxim.com/products/point-to-multiprint/tsunami-ab-820-series

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